

PATENT ABSTRACTS OF JAPAN

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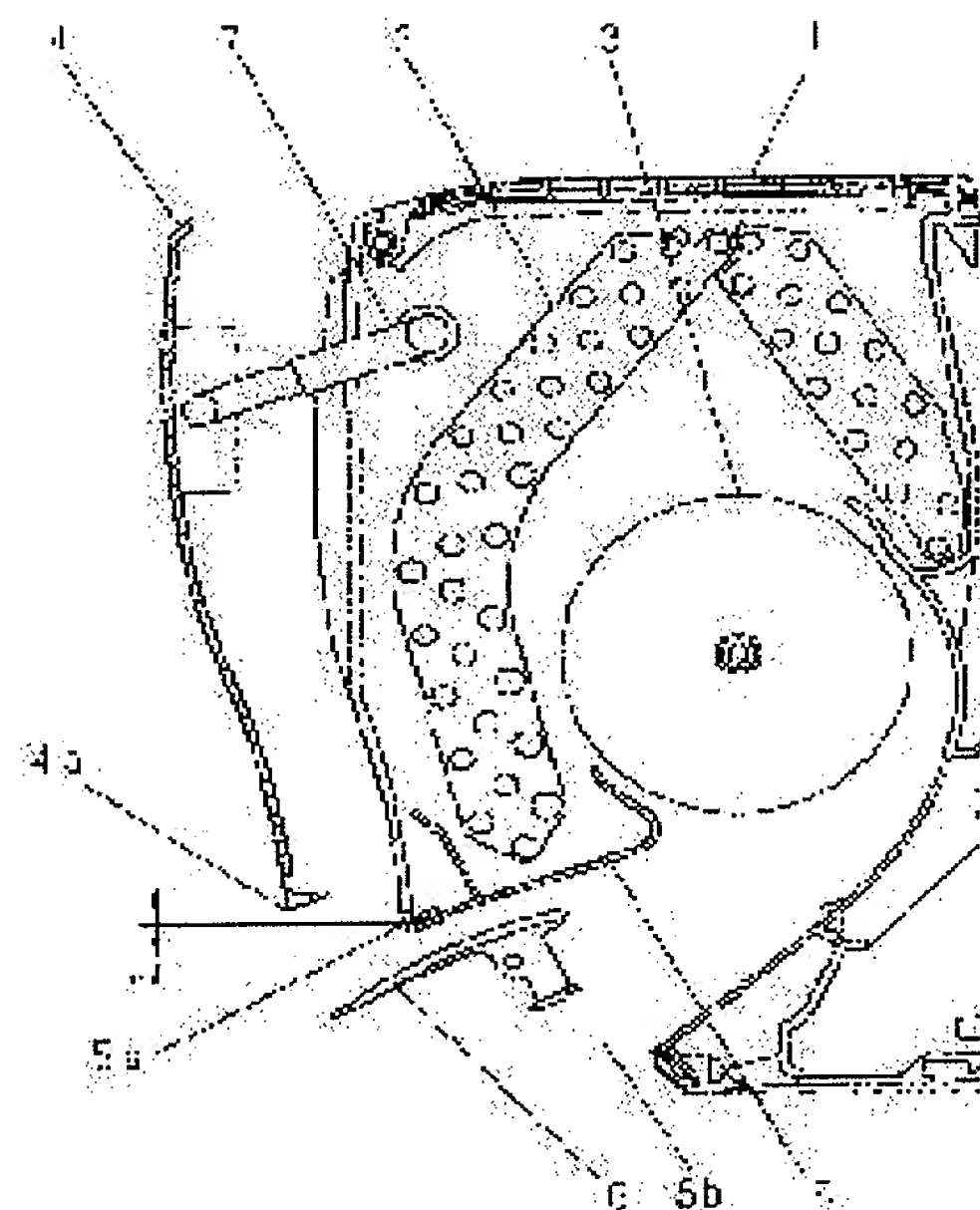
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(54) AIR CONDITIONER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an air conditioner excellent in appearance and with less dew condensation on a front panel part.

SOLUTION: An openable/closable front panel 4 is provided on a front side of an air conditioner body 1. A lower end of the front panel 4 is located below an upper end 5a of an air outlet 5b when the operation of the body 1 is stopped. When the body is operated, the front panel 4 is moved forward upwardly, the lower end 4a of the front panel 4 is located above the upper end 5a of the air outlet 5b. No opening part for air intake is required in the front panel, and cold air does not hit the front panel.



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CLAIMS

[Claim(s)]

[Claim 1]

Provide the front panel which can be opened and closed in a front face of an air conditioner body which possesses wind circuits and exit cones, such as a heat exchanger, a fan, and a blow-off grill, inside, and at the time of shutdown of said main part. An air conditioner characterized by locating a lower end of said front panel up from an upper bed of said exit cone while a lower end of said front panel is caudad located from an upper bed of said exit cone and said front panel moves to a front upper part at the time of operation.

[Claim 2]

The air conditioner according to claim 1 allotted to a position which can be recognized visually from a front lower part when it is the upper part and said front panel opens the indicator from a lower end of the closed front panel, while providing an indicator which displays operational status of a main part in a front face of said main part.

[Claim 3]

The 1st support plate that connected the front panel with a main part with support of a couple and with which one end was supported pivotally that the other end can be rotated on the front panel, respectively by main part at least in one side of support of said couple, The air conditioner according to claim 1 or 2 which was formed with the second support plate with which one end was attached at said main part respectively free [rotation and sliding] for the other end on said front panel, and was supported pivotally for said 1st support plate and said 2nd support plate enabling still freer rotation.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]****[Field of the Invention]**

This invention relates to the structure of the air conditioner which carries out the air conditioning of the living conditions.

[0002]**[Description of the Prior Art]**

Conventionally with the closing mechanism which established the blow-off grill which blows off a wind in the body front bottom, provided the front panel which opens and closes an air suction port above the blow-off grill, and was built in the main part as an air conditioner which provided the panel in the air suction port. There were some which open and close said front panel to a cross direction (for example, refer to patent documents 1).

[0003]

the crosspiece which the front grill 12 is allocated ahead of the air conditioner body 11, and serves as an air-breathing mouth to internal wind circuits as other conventional examples in the front grill 12 as shown in drawing 7 -- two or more openings 12a of ** were formed.

[0004]

13 is an indicator which displays the operational status of the air conditioner body 11, and it is the upper part of the shuttlecock 15 for up-and-down wind-direction change which the wind blew and was established in the exit 14, And it was allocated in the approximately center part of the cross direction of the air conditioner body 11, and in operation of the air conditioner body 11 or irrespective of shutdown, it provided in the appearance part of the air conditioner body 11 so that it might always be visible (for example, refer to patent documents 2).

[0005]

[Patent documents 1]

JP,04-084042,A

[Patent documents 2]

JP,2003-156228,A

[0006]

[Problem(s) to be Solved by the Invention]

However, if it is in some which open and close the above front panels forward and backward, In order for the front panel to blow off and to move ahead of a grill, at the time of cooling operation, the cold blast which blows off from the upper part of a blow-off grill was equivalent to the lower end part of the front panel, and became a turbulent flow easily, and the technical problem that it was easy to generate dew condensation near the occurred.

[0007]

the crosspiece which serves as an air-breathing mouth in the front grill 12 in the case of the conventional example shown in drawing 7 — since the opening 12a of ** was geometrically irregular, dust adhered easily and wiping was difficult. In order to secure an air suction amount enough, a certain amount of effective area product was indispensable, and there were many restrictions on a design.

[0008]

Since the indicator 13 was formed in the appearance part of the air conditioner body 11 and was always exposed, also where operation of the air conditioner body 11 is suspended, the portion serves as a strong part of impact nature on a design, and could not become the high design of fine sight nature felt refreshed easily.

[0009]

This invention solves the above-mentioned conventional technical problem, is cheap composition, and improves the fine sight nature of an air conditioner, and an object of this invention is to provide an air conditioner with still less dew condensation in a front panel lower end part.

[0010]

[Means for Solving the Problem]

Provide this invention, in order to solve an aforementioned problem, and the front panel which can be opened and closed in a front face of an air conditioner body provided with an exit cone at the time of shutdown of said main part. From an upper bed of said exit cone, a lower end of said front panel is located caudad, and at the time of operation. While said front panel moves to a front upper part, a lower end of said front panel is the thing it was made to be located up from an upper bed of said exit cone, fine sight nature to which an air suction opening can be secured between the front panel and a main part and in which the front panel does not have an opening is high — a design — in **, since there is no unevenness of a crosspiece etc. in the surface, the front panel does not become dirty easily, and since cold blast which blew off from an exit cone further does not hit easily in a front panel lower end, dew condensation can be prevented.

[0011]

[Embodiment of the Invention]

The invention according to claim 1 provides the front panel which can be opened and closed in the front face of the air conditioner body which possesses wind circuits and exit cones, such as a heat exchanger, a fan, and a blow-off grill, inside, At the time of the shutdown of said main part, from the upper bed of said exit cone, the lower end of said front panel is located caudad, and at the time of operation. While said front panel moves to a front upper part, the lower end of said front panel is the thing it was made to be located up from the upper bed of said exit cone,

the fine sight nature to which an air suction opening can be secured between the front panel and a main part and in which the front panel does not have an opening is high -- a design -- in **, since there is no unevenness of a crosspiece etc. in the surface, the front panel does not become dirty easily, and since the cold blast which blew off from the exit cone further does not hit easily in a front panel lower end, dew condensation can be prevented.

[0012]

While the invention according to claim 2 provides the indicator which displays the operational status of a main part in the front face of said main part, From the lower end of the closed front panel, from a front lower part, are the upper part, and when said front panel opens the indicator, are it what was allotted to the position which can be recognized visually, and at the time of shutdown. By making it not visible from outside, an indicator can eliminate the eye harm on a design and can raise the fine sight nature of an air conditioner.

[0013]

The 1st support plate with which the invention according to claim 3 connected the front panel with the main part with the support of the couple, and one end was supported pivotally that the other end can be rotated on the front panel, respectively by the main part at least in one side of the support of said couple, One end is what the other end formed in said main part with the second support plate attached to said front panel enabling rotation and respectively free sliding, and supported pivotally for said 1st support plate and said 2nd support plate on it enabling still freer rotation, The structure of support of moving the front panel to a front upper part is simplified, there is little failure, it is cheap and, moreover, a weight saving can be attained.

[0014]

[Example]

(Example 1)

Drawing 1 and 2 are used for below and the 1st example of this invention is described to it.

About a conventional example and identical parts, the explanation is omitted using identical codes and a name.

[0015]

Drawing 1 is a cross-sectional view when operation of the indoor unit body 1 of the air conditioner in this example has stopped, and drawing 2 is a cross-sectional view at the time of operation.

[0016]

In drawing 1, the heat exchanger 2, the fan 3, and the blow-off grill 5 are arranged on the inside of the main part 1. While it is open for free passage to the blow-off grill 5, the shuttlecock 6 for up-and-down wind-direction change which changes the direction of the air blowing off is formed in the exit cone 5b which blows off cold blast or/, and warm air outside.

[0017]

The front panel 4 connected with the main part 1 with the support 7 rotated with the drive which is not illustrated is allocated by the front face of the main part 1. The opening for air introduction is not provided in the front panel 4.

[0018]

At the time of shutdown, as shown in drawing 1, when a drive rotates the support 7 in the direction which closes the front panel 4 (counterclockwise rotation), the front panel 4 closes and it is close to the main part 1. In that case, the lower end 4a of the front panel 4 is located under the upper bed 5a of the exit cone 5b.

[0019]

And at the time of operation, as shown in drawing 2, when a drive rotates the support 7 in the direction which the front panel 4 opens (clockwise rotation), the front panel 4 moves to a front upper part, and the lower end 4a of the front panel 4 is located up from the upper bed 5a of the exit cone 5b only for B minutes.

[0020]

By the above-mentioned composition, the front panel 4 moves to a front upper part at the time of operation, and by rotation of the fan 3 indoor air, It absorbs from the crevice between the upper parts of the front panel 4 and the main part 1, the sides, and the lower parts which were

ahead located from the main part 1, heat exchange is carried out to cold or pre-heating by the heat exchanger 2, it passes along the blow-off grill 5 and the exit cone 5b, a blow-off angle is changed by the shuttlecock 6 for up-and-down wind-direction change, and it blows off indoors.
[0021]

In air conditioning, the cold blast which blows off from the exit cone 5b, When an obstacle etc. are ahead, in it, become a turbulent flow, and are easy to generate dew condensation, but in this example. From the upper bed 5a of the exit cone 5b, as shown in drawing 2, since the lower end 4a of the front panel 4 is located up only for height B minutes, cold blast does not hit the lower end 4a easily, and it can prevent generating of dew condensation.

[0022]

At the time of shutdown, as shown in drawing 1, since the lower end 4a of the front panel 4 is located caudad only for height A minutes, the upper bed 5a of the exit cone 5b on which the nonwoven fabric etc. were stuck is concealed, and fine sight nature can be improved from the upper bed 5a of the exit cone 5b.

[0023]

Since the opening for air introduction becomes unnecessary entirely at the front panel 4 according to this example, dust is not accumulated, cleaning becomes easy and, moreover, the sophisticated design of a fine sight can be given.

[0024]

(Example 2)

Next, the 2nd example of this invention is described using drawing 3 and 4. About the above-mentioned example and identical parts, the explanation is omitted using identical codes and a name.

[0025]

Drawing 3 is a cross-sectional view of the indoor unit body 1 of an air conditioner, the front panel 4 in the state where it opened is a solid line, and the front panel 4 in the state where it closed is shown by the two-dot chain line, respectively.

[0026]

Drawing 4 is a front view of the main part 1 at the time of shutdown.

[0027]

In drawing 3, the indicator 8 which displays the operational status of an air conditioner is allocated in the anterior part of the drain pan part (not shown) of the blow-off grill 5.

[0028]

And the above-mentioned indicator 8 is not visible during the shutdown of the main part 1, and is attached to the position which can be recognized visually from a front lower part during operation.

[0029]

When the main part 1 is seen from the arrowed direction 9 of a front lower part at the time of shutdown, from the lower end 4a of the front panel 4, the lower end 8a of the indicator 8 is up, and, specifically, is concealed with the front panel 4 only for height C minutes. When the main part 1 is looked up at from a front lower part at the time of operation (arrowed direction 9), since it has allotted caudad from the lower end 4a of the front panel 4 only for height D minutes, the lower end 8a of the indicator 8 can recognize the indicator 8 visually more easily than a front lower part.

[0030]

As mentioned above, since according to this example the indicator 8 is concealed inside the front panel 4 at the time of shutdown as shown in drawing 4, the fine sight nature of an air conditioner can be raised.

[0031]

(Example 3)

Next, the 3rd example of this invention is described using drawing 5 and 6. About the above-mentioned example and identical parts, the explanation is omitted using identical codes and a name.

[0032]

Drawing 5 is in the state which the front panel 4 opened, and is the figure to which the support 12 of the couple which connects the front panel 4 with the main part 1, and its mounting part were expanded.

[0033]

The 1st support plate 14 with which the support 12 was provided with the axis 14a with which one end was supported pivotally that the other end can be rotated on the front panel 4, respectively by the main part 1, The other end becomes the receiving part A1b of the groove or the shape of a long hole which one end provided in the main part 1 from the 2nd support plate 15 provided with the axis 15a attached to receiving part B4b of the groove or the shape of a long hole provided in the front panel 4 enabling rotation and respectively free sliding, Furthermore, the 1st support plate 14 and 2nd support plate 15 are connected with the axis 13 in the approximately center part, enabling free rotation.

[0034]

11a is the gear A for rotating the 1st support plate 14 in one, and is rotated with the drive 11 via the gear B11b.

[0035]

In the above-mentioned composition, like drawing 6, at the time of shutdown. By the gear A rotated with the drive 11, B11a, and 11b. The 1st support plate 14 rotates counterclockwise, while the axis 15a in the both ends of the 2nd support plate 15 rotates, it slides, it moves so that it may separate in a sliding direction, respectively, and the 1st support plate 14 and 2nd support plate 15 come to lap, and the front panel 4 can make it close to the main part 1.

[0036]

At the time of operation, via the gear B11b and the gear A11a with the drive 11, If the 1st support plate 14 is rotated clockwise, it moves so that the axis 15a in the both ends of the 2nd support plate 15 may approach in a sliding direction, and will be in the state where the 1st and 2nd support plate 14 and 15 opens, as [show / in drawing 5]. Since the center of rotation of the axis 14a by the side of the main part 1 of the 1st support plate 14 is being fixed at this time, the front panel 4 can be moved to a front upper part from the main part 1.

[0037]

Thus, according to this example, the structure of the support 12 becomes an easy thing which consists of two parts, and cost can be reduced.

[0038]

Although the axis provided in the both ends of the 2nd support plate 15 was received in the above-mentioned example by the receiving parts B and A of the slot established in the front panel 14 and main part 1 side, or the shape of a long hole, Even if the receiving parts B and A of a slot or the shape of a long hole are formed in the both ends of the reverse composition 15, i.e., the 2nd support plate, and it provides an axis in the front panel 14 and main part 1 side, the same effect is not acquired also until it says.

[0039]

[Effect of the Invention]

As mentioned above, according to this invention, since there is no unevenness of the surfaces, such as a crosspiece, while being able to make the front panel the high design of fine sight nature without an opening, it is hard to become dirty, and wiping becomes easy also when it becomes dirty. Since the cold blast which blew off from the exit cone is not equivalent to the lower end of the front panel easily, dew condensation can also be prevented.

[Brief Description of the Drawings]

[Drawing 1] The cross-sectional view at the time of the shutdown of the air conditioner which shows the 1st example of this invention

[Drawing 2] The cross-sectional view at the time of operation of the air conditioner

[Drawing 3] The cross-sectional view of an air conditioner showing the 2nd example of this invention

[Drawing 4] The front view at the time of the shutdown of the air conditioner

[Drawing 5] The enlarged drawing of the support of an air conditioner in which the 3rd example of this invention is shown

[Drawing 6] The cross-sectional view at the time of the shutdown of the air conditioner

[Drawing 7] The front view of an air conditioner showing the conventional example

[Description of Notations]

1 Main part

4 Front panel

4a Lower end

5 Blow-off grill

5a Upper bed

5b Exit cone

8 Indicator

11 Drive

12 Support

14 The 1st support plate

15 The 2nd support plate

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The cross-sectional view at the time of the shutdown of the air conditioner which shows the 1st example of this invention

[Drawing 2] The cross-sectional view at the time of operation of the air conditioner

[Drawing 3] The cross-sectional view of an air conditioner showing the 2nd example of this invention

[Drawing 4] The front view at the time of the shutdown of the air conditioner

[Drawing 5] The enlarged drawing of the support of an air conditioner in which the 3rd example of this invention is shown

[Drawing 6] The cross-sectional view at the time of the shutdown of the air conditioner

[Drawing 7] The front view of an air conditioner showing the conventional example

[Description of Notations]

1 Main part

4 Front panel

4a Lower end

5 Blow-off grill

5a Upper bed

5b Exit cone

8 Indicator

11 Drive

12 Support

14 The 1st support plate

15 The 2nd support plate

[Translation done.]

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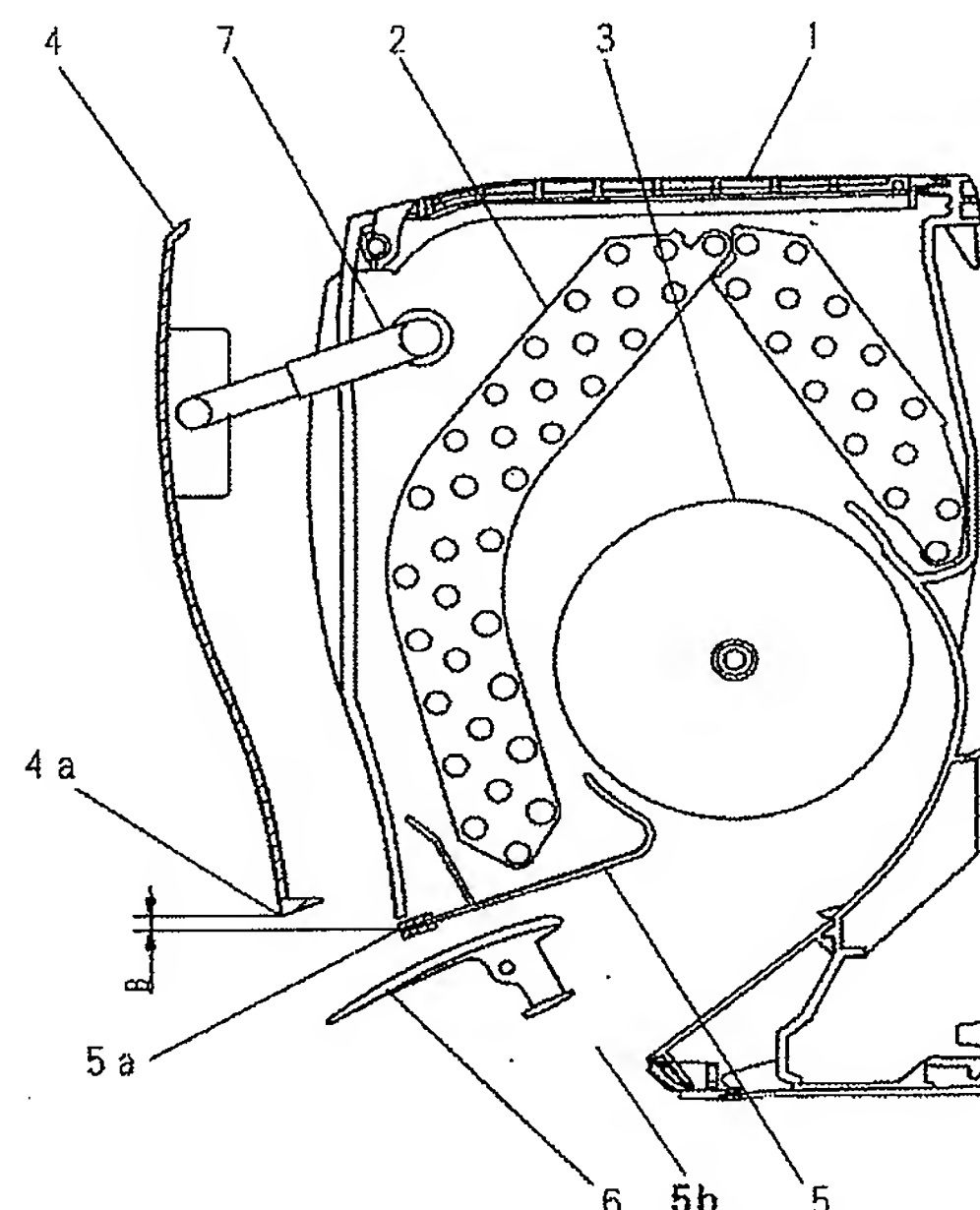
(54) 【発明の名称】 空気調和機

(57) 【要約】

【課題】 美観性に優れ、前面パネル部での結露の少ない空気調和機を提供する。

【解決手段】 空気調和機本体1の前面に開閉可能な前面パネル4を設け、前記本体1の運転停止時には、前記前面パネル4の下端が吹出し口5bの上端5aより下方に位置し、運転時には、前記前面パネル4が前方上方に移動するとともに、前記前面パネル4の下端4aが、前記吹出し口5bの上端5aより上方に位置するようにして、空気取り入れ用の開口部不用の前面パネルとし、さらに冷風が前記前面パネルに当たらないようにした。

【選択図】 図2



【特許請求の範囲】

【請求項1】

内部に熱交換器、ファン、吹出しグリル等の風回路及び吹出し口を具備した空気調和機本体の前面に開閉可能な前面パネルを設け、前記本体の運転停止時には、前記前面パネルの下端が前記吹出し口の上端より下方に位置し、運転時には、前記前面パネルが前方上方に移動するとともに、前記前面パネルの下端が、前記吹出し口の上端より上方に位置することを特徴とする空気調和機。

【請求項2】

本体の運転状態を表示する表示部を前記本体の前面に設けるとともに、その表示部を、閉じた前面パネルの下端より上方で、かつ前記前面パネルが開いた時に前方下方から視認できる位置に配した請求項1記載の空気調和機。

【請求項3】

本体と前面パネルを一对の支持具で連結し、前記一对の支持具の少なくとも一方を、一端が本体に、他端が前面パネルにそれぞれ回動自在に軸支された第1の支持板と、一端が前記本体に、他端が前記前面パネルにそれぞれ回動かつ摺動自在に取り付けられた第二の支持板で形成し、さらに前記第1の支持板と前記第2の支持板を回動自在に軸支した請求項1または2記載の空気調和機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】

本発明は、住環境を冷暖房する空気調和機の構造に関するものである。

【0002】

【従来の技術】

従来、空気吸込口にパネルを設けた空気調和機として、本体前面の下側に、風を吹き出す吹出しグリルを設け、その吹出しグリルの上方に、空気吸込口を開閉する前面パネルを設け、本体に内蔵された開閉装置で、前記前面パネルを前後方向に開閉するものがあった（例えば、特許文献1参照）。

【0003】

また、他の従来例として、図7に示すように、空気調和機本体11の前方に前面グリル12が配設され、その前面グリル12には、内部の風回路への空気の吸込み口となる棧状の開口部12aが複数設けられていた。

【0004】

13は、空気調和機本体11の運転状態を表示する表示部で、風の吹き出口14に設けられた上下風向変更用羽根15の上方で、かつ空気調和機本体11の幅方向の略中央部に配設され、空気調和機本体11の運転中または運転停止にかかわらず、常時見えるように空気調和機本体11の外観部に具備されていた（例えば、特許文献2参照）。

【0005】

【特許文献1】

特開平04-084042号公報

【特許文献2】

特開2003-156228号公報

【0006】

【発明が解決しようとする課題】

しかしながら上記のような前面パネルを前後に開閉するものにあっては、前面パネルが吹出しグリルの前方に移動するため、冷房運転時に、吹出しグリルの上部より吹出される冷風が、前面パネルの下端部に当たり、乱流となり易く、また、その付近で結露が発生し易いという課題があった。

【0007】

また、図7に示される従来例の場合、前面グリル12にある空気の吸込み口となる棧状の開口部12aが、形状的に凹凸があるため、ほこりが付着し易く、拭き掃除が困難であっ

た。また、空気吸込み量を充分確保するためにある程度の開口面積が不可欠で、デザイン上の制約が多かった。

【0008】

さらに、表示部13が、空気調和機本体11の外観部に設けられ、常時露出しているため、空気調和機本体11の運転を停止した状態でも、その部分がデザイン上、インパクト性の強い箇所となり、すっきりとした美観性の高いデザインとなりにくかった。

【0009】

本発明は、上記従来の課題を解決するもので、安価な構成で、空気調和機の美観性を高め、さらに、前面パネル下端部での結露の少ない空気調和機を提供することを目的とするものである。

【0010】

【課題を解決するための手段】

上記課題を解決するため本発明は、吹出し口を備えた空気調和機本体の前面に開閉可能な前面パネルを設け、前記本体の運転停止時には、前記前面パネルの下端が前記吹出し口の上端より下方に位置し、運転時には、前記前面パネルが前方上方に移動するとともに、前記前面パネルの下端が、前記吹出し口の上端より上方に位置するようにしたもので、前面パネルと本体との間で空気吸込み口が確保でき、前面パネルが開口部のない美観性の高いデザインなるとともに、表面に栈などの凹凸がないため、前面パネルが汚れにくく、さらに吹出し口より吹出した冷風が前面パネル下端に当りにくいいため、結露が防止できる。

【0011】

【発明の実施の形態】

請求項1に記載の発明は、内部に熱交換器、ファン、吹出しグリル等の風回路及び吹出し口を具備した空気調和機本体の前面に開閉可能な前面パネルを設け、前記本体の運転停止時には、前記前面パネルの下端が前記吹出し口の上端より下方に位置し、運転時には、前記前面パネルが前方上方に移動するとともに、前記前面パネルの下端が、前記吹出し口の上端より上方に位置するようにしたもので、前面パネルと本体との間で空気吸込み口が確保でき、前面パネルが開口部のない美観性の高いデザインなるとともに、表面に栈などの凹凸がないため、前面パネルが汚れにくく、さらに吹出し口より吹出した冷風が前面パネル下端に当りにくいいため、結露が防止できる。

【0012】

請求項2記載の発明は、本体の運転状態を表示する表示部を前記本体の前面に設けるとともに、その表示部を、閉じた前面パネルの下端より上方で、かつ前記前面パネルが開いた時に前方下方から視認できる位置に配したもので、運転停止時には、表示部が外から見えないようにすることにより、デザイン上の目障りをなくし、空気調和機の美観性を向上させることができる。

【0013】

請求項3記載の発明は、本体と前面パネルを一对の支持具で連結し、前記一对の支持具の少なくとも一方を、一端が本体に、他端が前面パネルにそれぞれ回動自在に軸支された第1の支持板と、一端が前記本体に、他端が前記前面パネルにそれぞれ回動かつ摺動自在に取り付けられた第二の支持板で形成し、さらに前記第1の支持板と前記第2の支持板を回動自在に軸支したもので、前面パネルを前方上方へ移動させる支持具の構造が簡略化され、故障が少なく、安価で、しかも軽量化を図ることができる。

【0014】

【実施例】

(実施例1)

以下に、本発明の第1の実施例を図1、2を用いて説明する。なお、従来例と同一部分については、同一符号、名称を用いてその説明を省略する。

【0015】

図1は、本実施例における空気調和機の室内ユニット本体1の運転が停止している時の横断面図で、図2は運転時の横断面図である。

【0016】

図1において、本体1の内部には、熱交換器2、ファン3、吹出しグリル5が配されている。吹出しグリル5に連通するとともに、冷風或いは／及び温風を外部に吹出す吹出し口5bには、吹き出される空気の方角を変える上下風向変更用羽根6が設けられている。

【0017】

本体1の前面には、本体1と、図示しない駆動装置によって回転駆動される支持具7で連結された前面パネル4が配設されている。前面パネル4には、空気取り入れ用の開口部は設けられていない。

【0018】

図1に示されるように、運転停止時には、駆動装置が、前面パネル4を閉じる方向に支持具7を回転（反時計方向）することにより、前面パネル4が閉じると共に本体1に密接する。その際、前面パネル4の下端4aは、吹出し口5bの上端5aの下方に位置している。

【0019】

そして、運転時には、図2に示されるように、駆動装置が、前面パネル4が開く方向に支持具7を回転（時計方向）することにより、前面パネル4が、前方上方に移動して、前面パネル4の下端4aは、吹出し口5bの上端5aよりB分だけ、上方に位置する。

【0020】

上記構成により、運転時には、前面パネル4が前方上方に移動し、ファン3の回転により、室内空気は、本体1より前方に位置した前面パネル4と本体1の上方、側方、下方の隙間より吸込まれ、熱交換器2により、冷気や暖気に熱交換され、吹出しグリル5、吹出し口5bを通り、上下風向変更用羽根6により、吹出し角度を変更されて、室内に吹出される。

【0021】

冷房の場合、吹出し口5bから吹出される冷風は、前方に障害物などがある場合、それに当たり、乱流となり、結露を発生し易いが、本実施例では、図2に示すように、吹出し口5bの上端5aより、前面パネル4の下端4aは高さB分だけ上方に位置するため、冷風は下端4aに当たりにくく、結露の発生を防止することができる。

【0022】

また運転停止時は、図1に示されるように、吹出し口5bの上端5aより、前面パネル4の下端4aが、高さA分だけ下方に位置するため、不織布などが貼付けられた吹出し口5bの上端5aが隠蔽され、美観性を高めることができる。

【0023】

また、本実施例によれば、前面パネル4に空気取り入れ用の開口部が一切不用になるので、埃が蓄積する事が無く、掃除が容易になり、しかも美観の優れたデザインを施すことができるようになる。

【0024】

(実施例2)

次に、本発明の第2の実施例を図3、4を用いて説明する。なお、上記実施例と同一部分については、同一符号、名称を用いてその説明を省略する。

【0025】

図3は、空気調和機の室内ユニット本体1の横断面図で、開いた状態の前面パネル4が実線で、閉じた状態の前面パネル4が2点鎖線でそれぞれ示されている。

【0026】

図4は運転停止時の本体1の正面図である。

【0027】

図3において、吹出しグリル5の水受け皿部（図示せず）の前部には、空気調和機の運転状態を表示する表示部8が配設されている。

【0028】

そして、上記表示部8は、本体1の運転停止中は見えず、運転中は、前方下方より視認で

きる位置に取り付けられている。

【0029】

具体的には、運転停止時に、本体1を前方下方の矢視方向9から見た場合、表示部8の下端8aは、前面パネル4の下端4aより高さC分だけ上方にあり、前面パネル4により隠蔽されている。また運転時には、本体1を前方下方から見上げた場合（矢視方向9）、表示部8の下端8aは、前面パネル4の下端4aより高さD分だけ下方に配しているため、表示部8は、前方下方より容易に視認できる。

【0030】

以上のように、本実施例によれば、図4に示されるように、運転停止時には、表示部8は前面パネル4の内側に隠蔽されるため、空気調和機的美観性を向上させることができる。

【0031】

（実施例3）

次に、本発明の第3の実施例を図5、6を用いて説明する。なお、上記実施例と同一部分については、同一符号、名称を用いてその説明を省略する。

【0032】

図5は、前面パネル4が開いた状態で、前面パネル4を本体1に連結する一对の支持具12並びにその取り付け部を拡大した図である。

【0033】

支持具12は、一端が本体1に、他端が前面パネル4にそれぞれ回動自在に軸支された軸14aを備えた第1の支持板14と、一端が本体1に設けた溝状又は長孔状の受部A1bに、他端が前面パネル4に設けた溝状又は長孔状の受部B4bにそれぞれ回動かつ摺動自在に取り付けられた軸15aを備えた第2の支持板15からなり、さらに第1の支持板14と第2の支持板15は、略中央部で軸13で回動自在に連結されている。

【0034】

11aは、第1の支持板14を一体的に回動させるためのギアAで、ギアB11bを介して駆動装置11により、回転駆動されるようになっている。

【0035】

上記構成において、図6のように、運転停止時には、駆動装置11によって回転駆動されるギアA、B11a、11bにより、第1の支持板14が、反時計方向に回転し、第2の支持板15の両端にある軸15aが回転しながら摺動して、上下方向でそれぞれ離れるように移動して第1の支持板14と第2の支持板15が重なるようになり、前面パネル4が本体1に密接させることができる。

【0036】

また、運転時には、駆動装置11によりギアB11b、ギアA11aを介して、第1の支持板14を時計方向に回転させると、第2の支持板15の両端にある軸15aが上下方向で近づくように移動して、図5に示されるように、第1、第2の支持板14、15が開く状態になる。この時、第1の支持板14の本体1側の軸14aの回転中心は固定されているので、前面パネル4は本体1より前方上方に移動させることができる。

【0037】

このように本実施例によれば、支持具12の構造が2部品からなる簡単なものとなり、コストを低減できる。

【0038】

なお、上記実施例において、第2の支持板15の両端に設けた軸を、前面パネル14と本体1側に設けた溝或いは長孔状の受部B、Aで受けたが、逆の構成、すなわち第2の支持板15の両端に溝或いは長孔状の受部B、Aを設け、前面パネル14と本体1側に軸を設けても、同様の効果が得られることは言うまでも無い。

【0039】

【発明の効果】

以上のように、本発明によれば、前面パネルを開口部のない美観性の高いデザインにすることができるとともに、棧などの表面の凹凸がないため、汚れにくく、また汚れた場合に

も、拭き掃除が容易となる。また、吹出し口より吹出した冷風が前面パネルの下端に当たりにくいよう、結露も防止できる。

【図面の簡単な説明】

【図1】 本発明の第1の実施例を示す空気調和機の運転停止時の横断面図

【図2】 同空気調和機の運転時の横断面図

【図3】 本発明の第2の実施例を示す空気調和機の横断面図

【図4】 同空気調和機の運転停止時の正面図

【図5】 本発明の第3の実施例を示す空気調和機の支持具の拡大図

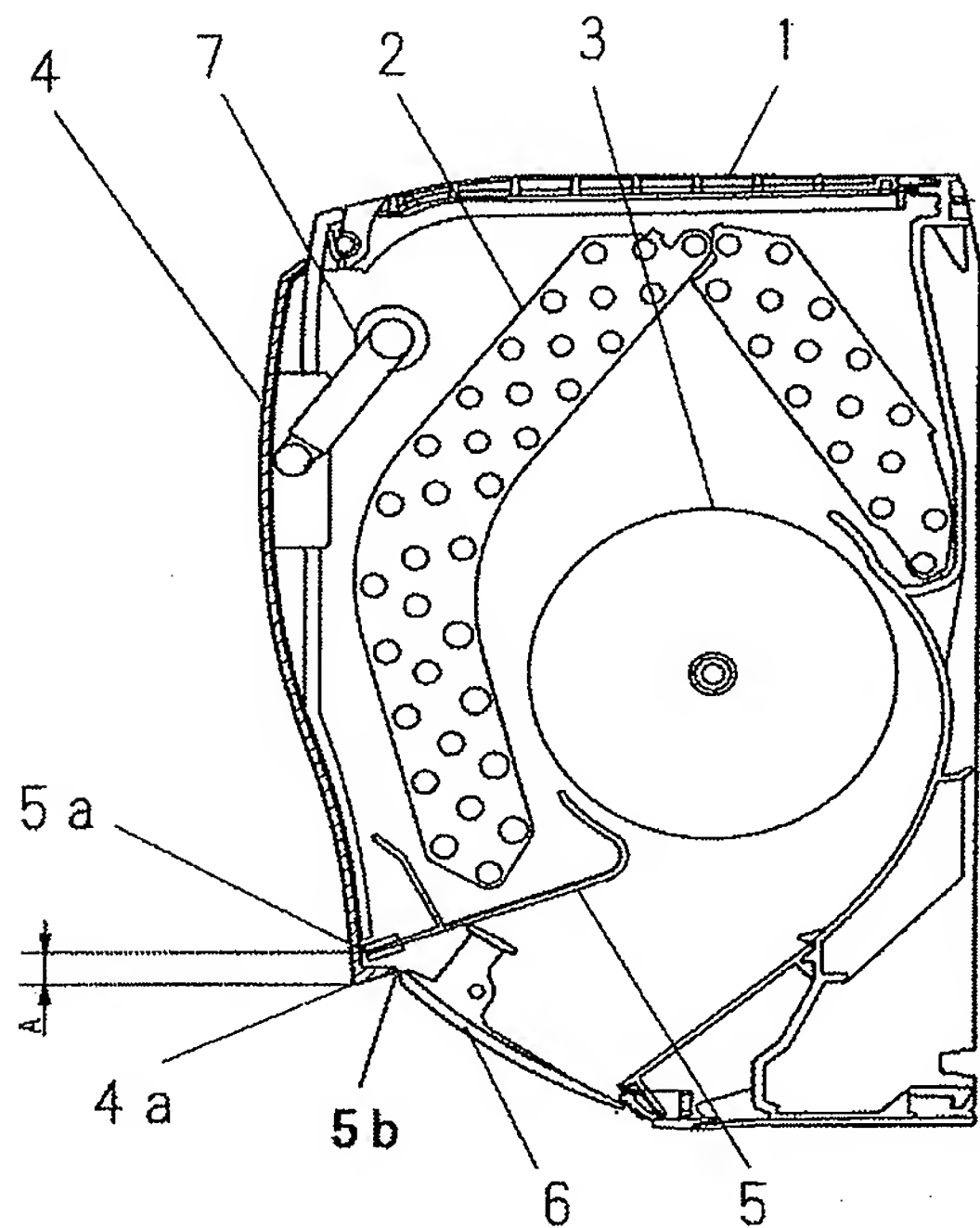
【図6】 同空気調和機の運転停止時の横断面図

【図7】 従来の例を示す空気調和機の正面図

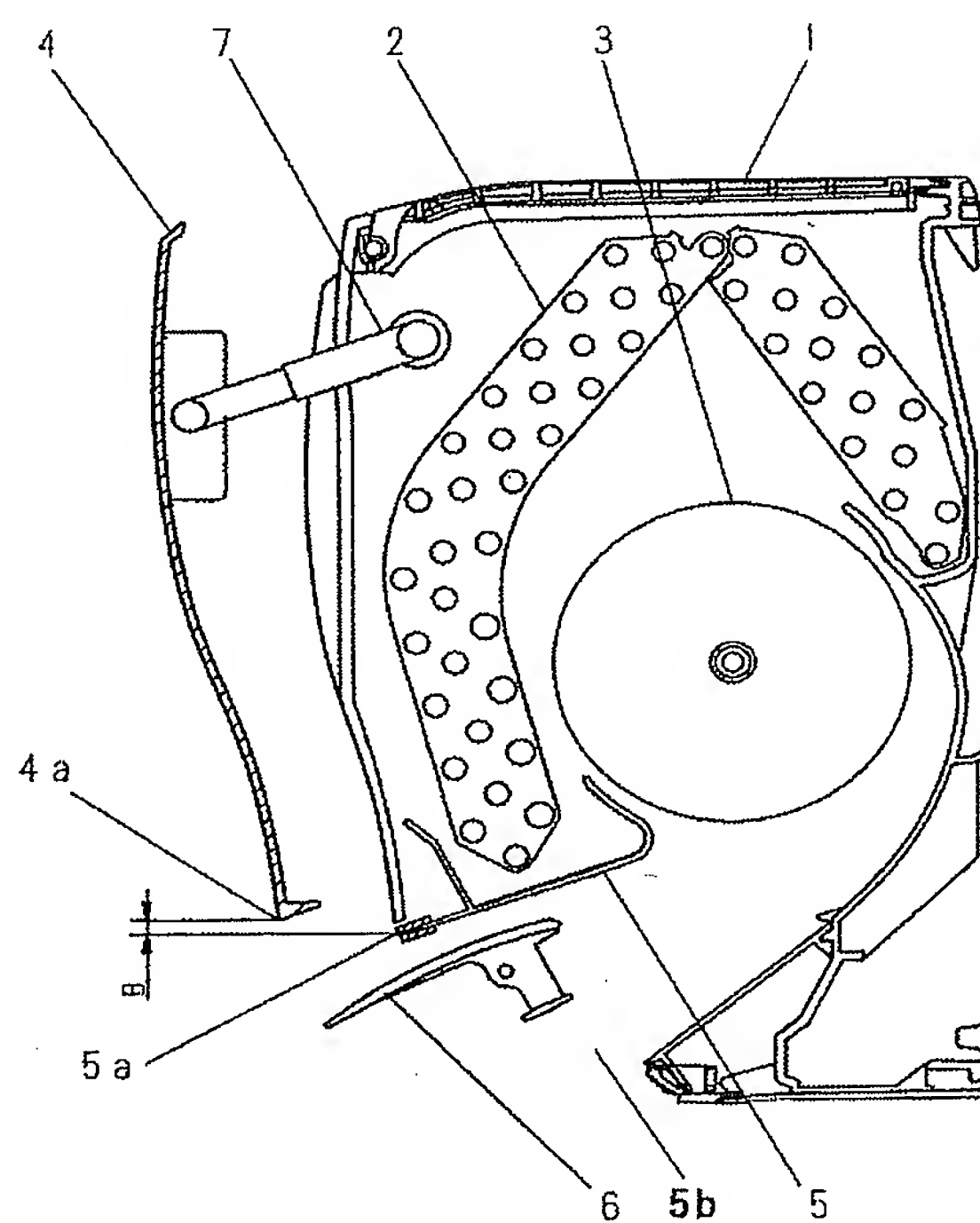
【符号の説明】

- 1 本体
- 4 前面パネル
- 4 a 下端
- 5 吹出しグリル
- 5 a 上端
- 5 b 吹出し口
- 8 表示部
- 11 駆動装置
- 12 支持具
- 14 第1の支持板
- 15 第2の支持板

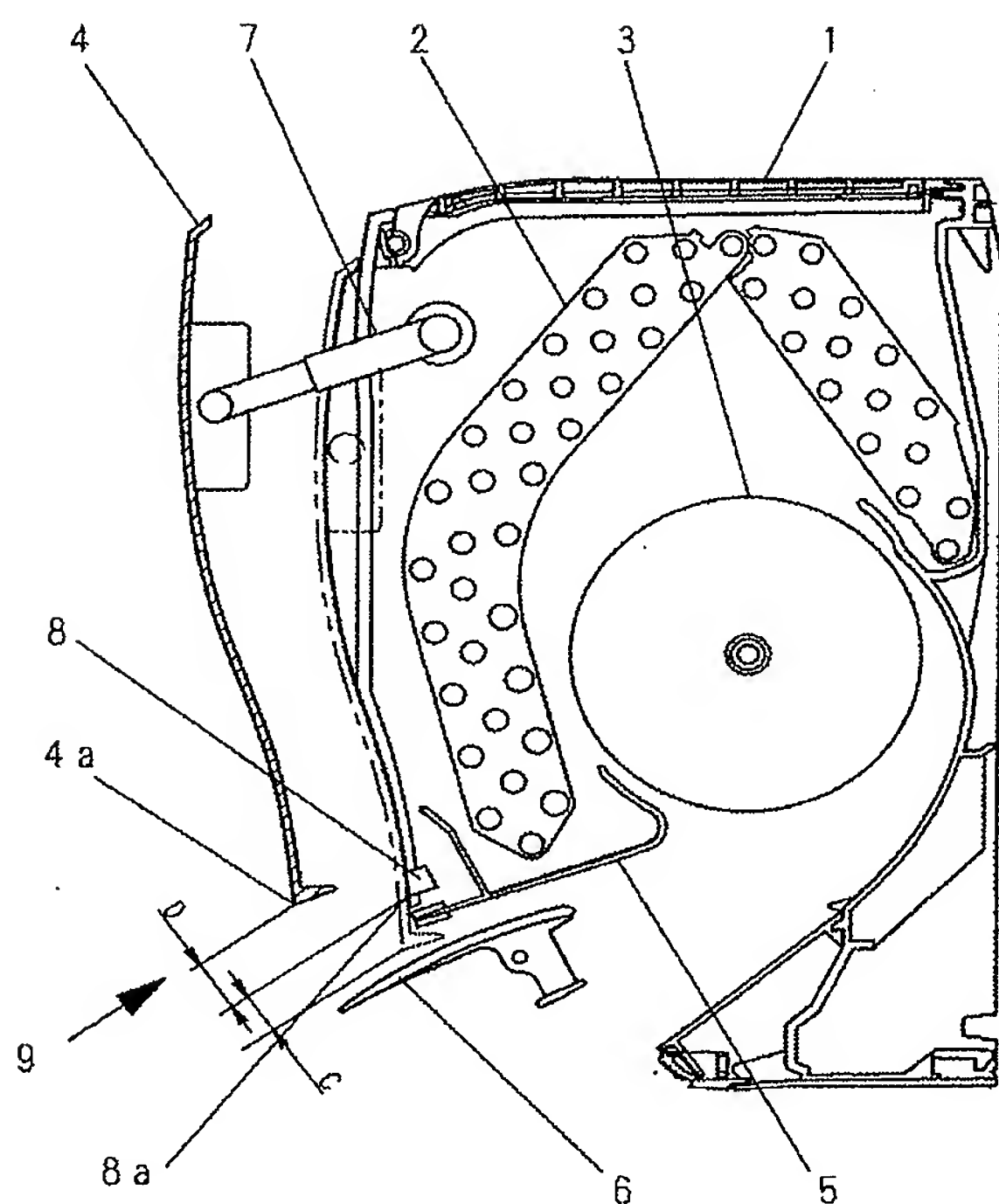
【図1】



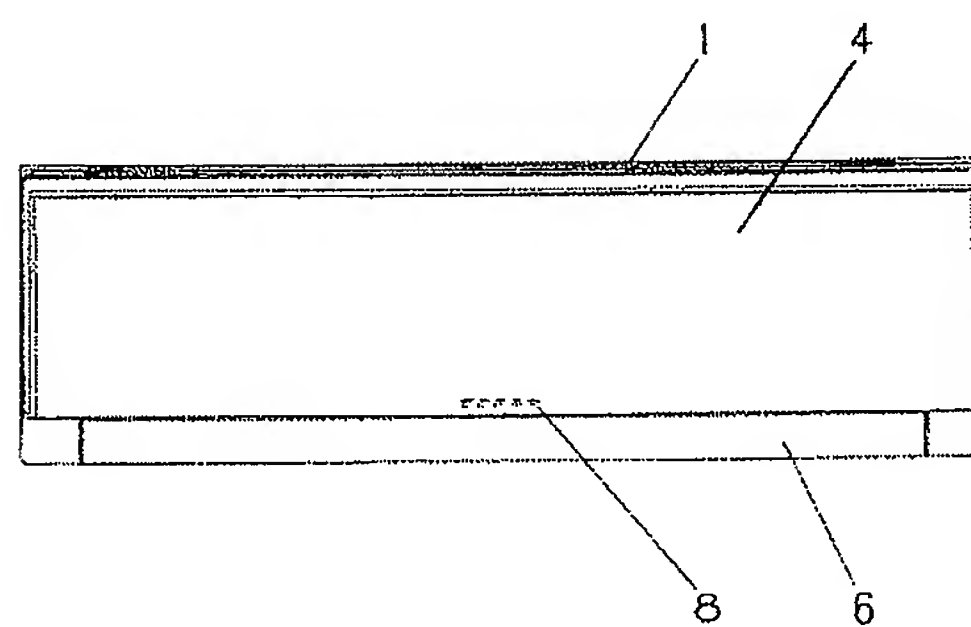
【図2】



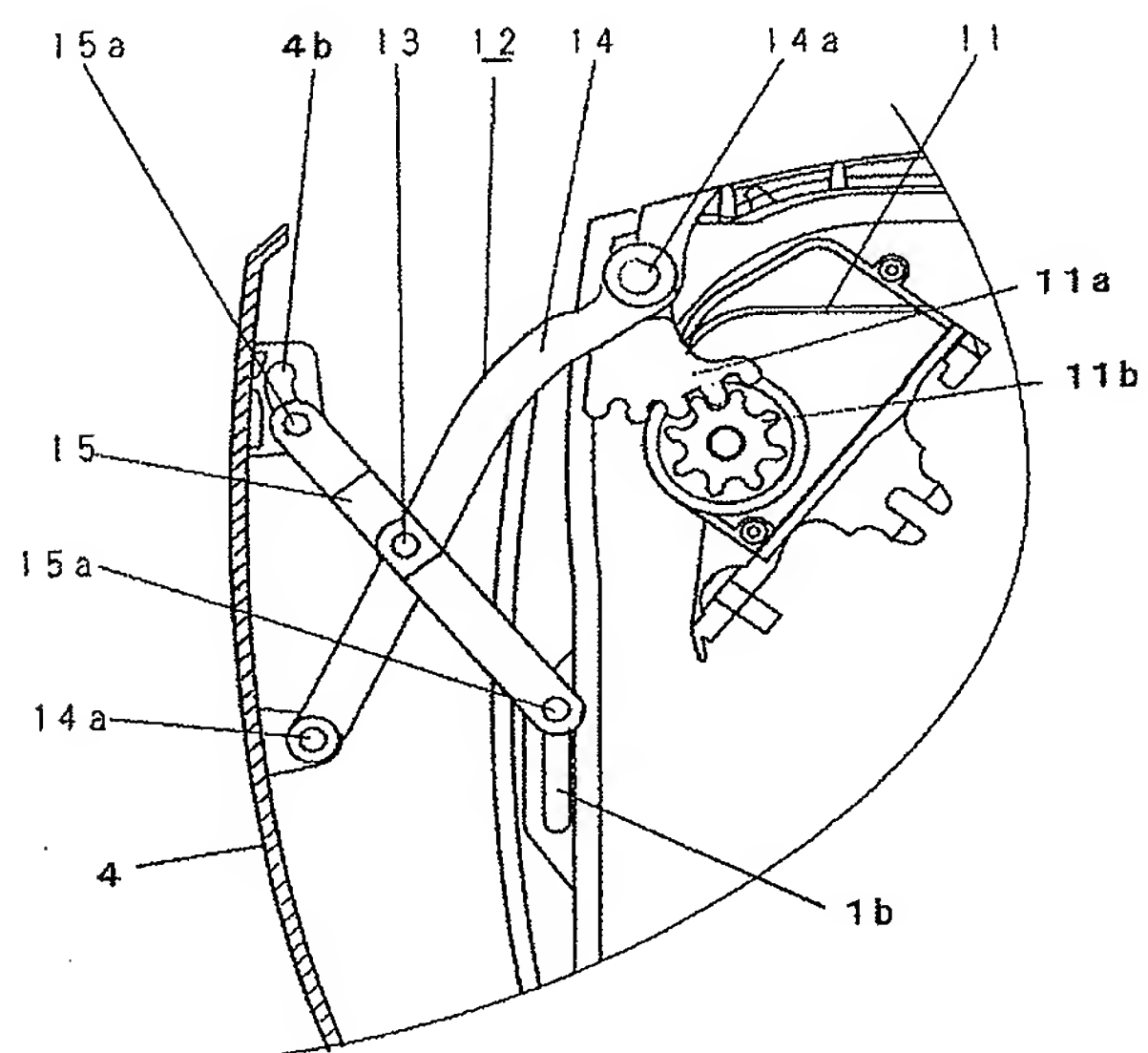
【図3】



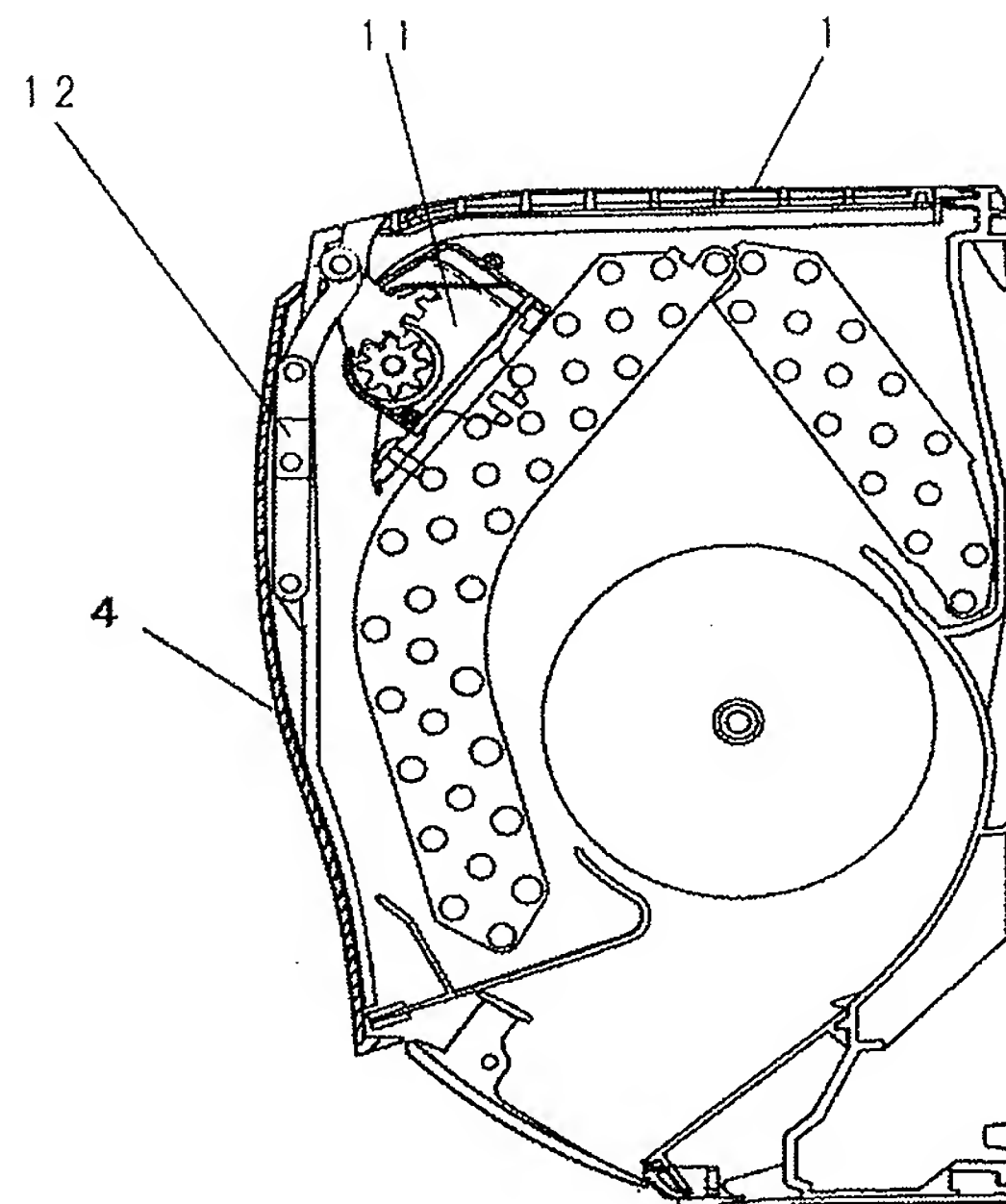
【図4】



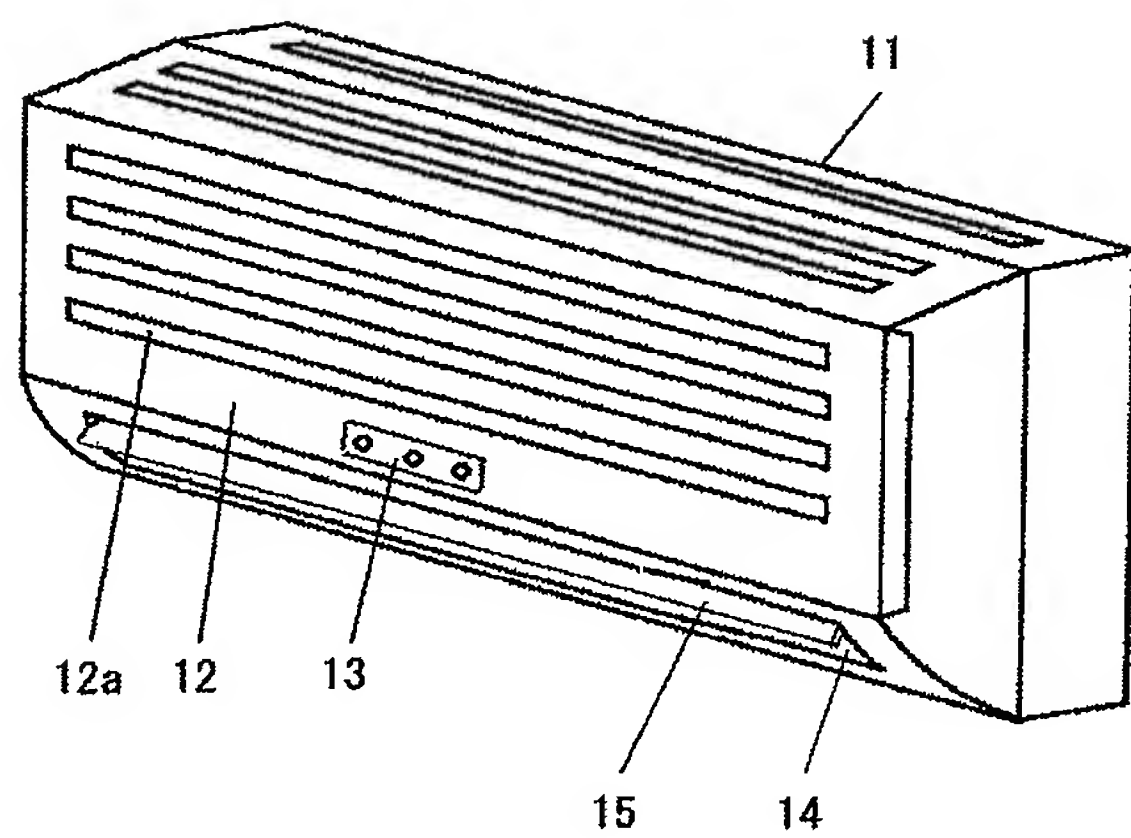
【図5】



【図6】



【図7】



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